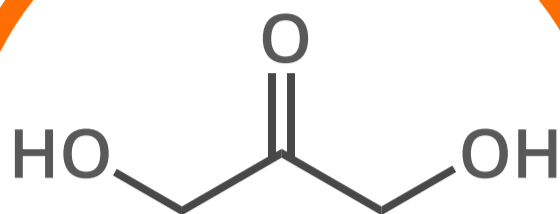


# THE CHEMISTRY OF FAKE TAN

Sunless tanning has become a popular way of getting a tanned look for the summer without the potential skin damage from sun exposure. This graphic takes a look at how fake tanning products work, and some of the safety concerns surrounding them.

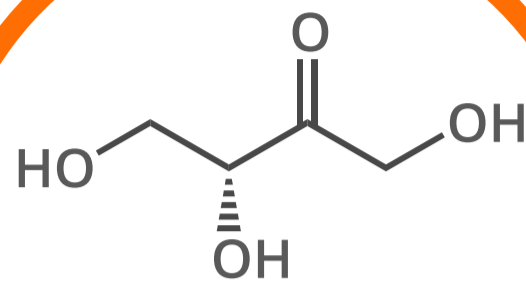


## TAN LOTION CHEMICALS



DIHYDROXYACETONE

a.k.a. DHA - most commonly used



ERYTHRULOSE

often used in combination with DHA



**LASTS 3-10 DAYS**  
2-4 HOURS TO APPEAR

Darkens for around 24 to 72 hours after application. Erythrulose takes longer to develop its full effect.



**1-15% DHA**  
USUALLY 5% IN STORE

The FDA approved DHA for use in tanning lotions in 1977. Use in spray tanning booths isn't approved.

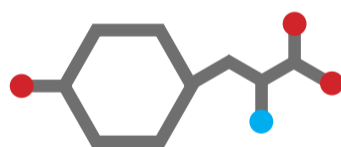
The 'tan' produced by tanning lotions only has an SPF of around 3. Because of this, many tanning lotions also contain some sun block in their formulations in order to help guard against UV light from the sun.



1  
APPLIED

2

REACTS



3

TAN



## HOW IT WORKS

The DHA in tanning lotions reacts with amino acids in the dead layer of skin on the skin's surface. This occurs via the Maillard reaction - the same type of reaction that occurs in baking and roasting of foods such as meat during cooking. This reaction leads to the production of melanoidins, which are the chemicals that cause the appearance of a tan.

THE CHEMICALS USED IN FAKE TANNING PRODUCTS ALSO HAVE SOME POTENTIAL RISKS; PARTICULARLY IN SPRAY TAN BOOTHS, WHERE THERE IS THE POSSIBILITY OF INHALATION.



**POTENTIAL MUTAGEN?**  
Conflicting evidence. Not at tanning lotion concentrations.



**UV ABSORPTION**  
Skin more sensitive to ultraviolet light for 24hrs after application.



**11%** **SKIN ABSORPTION**  
Some DHA is absorbed into living layers of skin. Effects unknown.

